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| 09/700,240 | 12/12/2000 | Paul Maurice Burling | GJE-01720 | 3687 |

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EXAMINER

TSOY, ELENA

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| ART UNIT | PAPER NUMBER |
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1762

DATE MAILED: 04/28/2003

18

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/700,240

Applicant(s)

BURLING, PAUL MAURICE

Examiner

Elena Tsoy

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2003 and 04 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 36-39, 42, 49, 50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 36-39 recite the limitation "the adhesive part". There is insufficient antecedent basis for this limitation in the claim.

Claims 49, 50 recite the limitation "the article". There is insufficient antecedent basis for this limitation in the claim. For examining purposes the claims were interpreted as depending on claim 47.

Claim 42, line 1, the suffix "able" (obtainable, preparable, derivable, etc.) when recited in conjunction with a process ("resin obtainable by reacting...") renders the claim indefinite since it is not possible to determine with certainty when such a claim is infringed, i.e. exactly when a product is "able" to be made by the claimed method and when it is not.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. **Claims 28-45, 47, 48** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carpenter (GB 693168) in view of Arkhangelsky et al (WO 9610545).

As to claims 28-39, 41-43, 45, 47, 48, Carpenter discloses a method of manufacturing a fireproof product (See page 1, lines 68-75) such as blocks (rigid product) (See page 1, lines 47, 53, 86) (i) by coating vermiculite aggregate with a coating material such as silicate soda (a ceramic binder) together with a filler (two part binder) and heat treating (curing/drying) the coating material (See page 1, lines 9-42); (ii) coating the pre-coated vermiculite aggregate with suitable vitreous (ceramic) binder with lower melting point, and hot pressing (curing/drying) the coating material (See page 1, lines 43-50, 76-86). Heating of raw vermiculite together with the coating material is controlled to assure the right amount of microscopic cells of the coating material and expansion of the vermiculite (forming voids with trapped air) (See page 1, lines 21-26, 37-42). The coated vermiculite aggregate can be in loose form (See page 1, lines 61-63). Carpenter further teaches that separately constructed steel trusses together with connectors and cross members can be cast into a mixture of coated vermiculite and suitable cement prior to curing/drying (See page 2, lines 71-78), i.e. a mixture of coated vermiculite and suitable cement can be coated onto a surface of an article prior to curing/drying.

Carpenter fails to teach that 35-95 % of the dry weight of the coated product is vermiculite having a particle size such that more than 60% of the vermiculite does not pass through a 1 mm sieve or up to 15 mm (Claims 28-30, 32-35, 40), the product further comprises a fibrous material reinforcement (Claim 44).

Arkhangelsky et al teach that a fire-resistant building material (See page 11, line 1) can be manufactured by heat-treating a mixture e.g. 38-74 % of vermiculite with silicate and phosphate (ceramic) binder (See page 7, lines 5-14) and fibrous material reinforcement (See page 4, line 26).

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Any fraction of vermiculite can be used as long as particle size is of at least 0.05 mm since coating of vermiculite of lesser size requires much more of coating material due to difficulties of wetting small particles with coating material which leads to higher cost (See page 4, lines 1-6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used vermiculite having particle size of at least 0.05 mm (including claimed size of up to 15 mm) in an amount of 38-74 % in a method of Carpenter together with a binder and fibrous material reinforcement with the expectation of providing the desired heat-resistant building material at low cost, since Arkhangelsky et al teach that any fraction of vermiculite together with a binder and fibrous material reinforcement can be used for making a fire-resistant building material as long as particle size is of at least 0.05 mm due to the fact that coating of vermiculite of lesser size requires much more of coating material due to difficulties of wetting small particles with coating material which leads to higher cost.

5. **Claims 46, 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carpenter (GB 693168) in view of Arkhangelsky et al (WO 9610545), as applied above, further in view of Slic et al (US 6,230,458).

Carpenter in view of Arkhangelsky et al, as applied above, fails to teach that the product is sandwiched between load supporting sheets adhered to the product (Claim 46), the product is a fire wall (Claim 52).

Slic et al teach that a fire-resistant slab can be made by sandwiching a core layer of vermiculite glued with silicate binder (See column 2, lines 52-56) between two metal foils 9,9' prior to curing (See column 3, lines 11-31).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a vermiculite coated with silicate binder of Carpenter in view of Arkhangelsky

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et al as a core layer for sandwiching between two metal foils for making a fire-resistant slab, as taught by Slic et al, or fire walls.

6. **Claim 49** is rejected under 35 U.S.C. 103(a) as being unpatentable over Carpenter (GB 693168) in view of Arkhangelsky et al (WO 9610545), as applied above, further in view of JP 08059370.

Carpenter in view of Arkhangelsky et al, as applied above, fails to teach that the coated vermiculite aggregate in loose form can be sprayed to a surface of the article.

JP 08059370 teaches that spraying is a simple process of applying loose particles to the surface to be coated.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied coated vermiculite aggregate in loose form by spraying to a surface of an article in a method of Carpenter in view of Arkhangelsky et al since JP 08059370 teaches that spraying is a simple process of applying loose particles to the surface to be coated.

7. **Claim 50** is rejected under 35 U.S.C. 103(a) as being unpatentable over Carpenter (GB 693168) in view of Arkhangelsky et al (WO 9610545), as applied above, further in view of Stroom et al (US 6,245, 301).

Carpenter in view of Arkhangelsky et al, as applied above, fails to teach that the product is adhered to honeycomb structure.

Stroom et al teach that one or **more layers** of a mixture of vermiculite, organic and/or inorganic binder and inorganic fibers (See column 5, lines 55-65) such as glass fibers (See column 8, lines 13-18) can be used for wrapping a catalytic converter of honeycomb structure (See column 5, lines 35-37; column 6, lines 23-26) to tightly seal a gap between the converter and the casing (See column 4, lines 14-17).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a coated vermiculite of Carpenter in view of Arkhangelsky et al for wrapping a catalytic converter of honeycomb structure with the expectation of providing the desired tight seal of a gap between the converter and the casing, as taught by Stroom et al.

8. **Claim 51** is rejected under 35 U.S.C. 103(a) as being unpatentable over Carpenter (GB 693168) in view of Arkhangelsky et al (WO 9610545), further in view of Stroom et al (US 6,245,301), as applied above, and further in view of Crompton (US 5,082,494).

Carpenter in view of Arkhangelsky et al in view of Stroom et al, as applied above, fails to teach that the organic binder is phenolic resin so that the honeycomb structure is wrapped by a layer of a mixture of vermiculite, phenolic resin binder and glass fibers (phenolic glass laminate) and a layer of a mixture of vermiculite, inorganic binder and glass fibers.

Crompton teaches that phenolic resin binder is functionally equivalent to an inorganic binder (See column 1, lines 56-58) for their use as binder in vermiculite containing compositions (See column 2, lines 7-8) for making heat-resistant materials (See column 1, lines 5-23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made a layer next to a catalytic converter of honeycomb structure in Carpenter in view of Arkhangelsky et al in view of Stroom et al using a phenolic resin as a binder with the expectation of providing the desired tight seal of a gap between the converter and the casing, since Crompton teaches that phenolic resin binder is functionally equivalent to an inorganic binder for their use as binder in vermiculite containing compositions for making heat-resistant materials.

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Response to Arguments

9. Applicant's arguments with respect to claims 28-35, 40-4951, 52 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (703) 605-1171. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

ET

Elena Tsoy
Examiner
Art Unit 1762

April 20, 2003

Shrive P. Beck

SHRIVE P. BECK
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